Taxonomic notes.—C. WARNSTORF (Hedwigia **47**:76–112. 1907), in describing new species of Sphagnum, includes 5 from the United States and 9 from S. America.—ED. FISCHER (Ber. Deutsch. Bot. Gesells. **25**:372–376. 1907) describes in a preliminary way some hypogeous fungi from California, collected by SETCHELL and GARDNER, including a new monotypic genus, *Pseudobalsamia Setchellii*, and a new species of Pseudogenea and of Hysterangium. He also refers Pseudhydnotrya to Geopora (Pezizaceae).—R. C. BENEDICT (Bull. Torr. Bot. Club **34**:445–458. 1907), in a first paper on the genus Antrophytum, has presented a synopsis of the subgenera and the American species, the latter 9 in number, 2 of which are new.—F. D. KERN (*idem* 459–463) has published new western species of Gymnosporangium (3) and Roestelia (3).—W. A. MURRILL (*idem* 465–481), in a list of Philippine Polyporaceae, has published 24 new species and transferred 21.—J. N. ROSE (Smithson. Miscell. Coll. **50**:330. 1907) has published a new Nopalea from Guatemala; and in collaboration with N. L. BRITTON (*idem* 331–333. *pls. 43, 44*) has established a new genus (*Pereskiopsis*) of Cactaceae, by raising to generic rank § Pereskiopuntia of Opuntia, including 11 species, 2 of which are described as new.—L. M. UNDERWOOD and W. R. MAXON (*idem* 335, 336) have described 2 new species of Lindsaea, one from Columbia, the other from Cuba.—W. F. WIGHT (*idem* 174. *pl. 17*) has described a new Alaskan larch (*L. alaskensis*).—C. V. PIPER (*idem* 195–202), in publishing some new plants of the Pacific slope, describes 3 new subspecies of *Cassiope Mertensiana;* presents a revision of *Orthocarpus tenuifolius* and its relatives, including a new species; and describes new species under Lupinus, Castilleia, and Valeriana.—F. S. COLLINS (Rhodora **9**:197–202. *pl. 76.* 1907) has described new species of green algae under Pleurococcus, Chaetomorpha, Cladophora, and Vaucheria (2).—A. DAVIDSON (Muhlenbergia **3**:105–108. 1907), in a discussion of several species of Sphaerostigma, describes a new species.—In the first paper (Bull. Soc. Bot. France **54**:1–30. 1907) of a series to contain descriptions of new plants collected in tropical Africa by AUG. CHEVALIER, CASIMIR DECANDOLLE describes a new genus (*Charia*) of Meliaceae.—In the 19th number of "Diagnoses Africanae" (Kew Bull. 1907:360–365), W. B. HEMSLEY has described a new genus (*Cordeauxia*) of Leguminosae (Caesalpinieae), and H. BOLUS a new genus (*Peglera*) of Rhizophoraceae.—N. L. BRITTON (Bull. N. Y. Bot. Gard. **5**:311–318. 1907), in a fourth contribution to the flora of the Bahama Islands, describes new species under Zamia, Ibidium, Badiera, Passiflora, Rochefortia, and Tetranthus.—G. W. WILSON (Bull. Torr. Bot. Club **34**:387–416. 1907), in a second paper on N. Am. Peronosporales, presents the Phytophthoreae and Rhysotheceae, and describes *Rhysotheca* as a new genus of 12 species, to include Peronospora § Zoosporatoparae DeBary.—P. A. RYDBERG (*idem* 417–437), in his 18th paper on the Rocky Mountain flora, breaks up Thelypodium, as heretofore recognized, into 6 genera, the 5 new genera being *Thelypodiopsis*, *Pleurophragma*, *Hesperidanthus*, *Stanleyella*, and *Heterothrix;* establishes a new genus (*Chlorocrambe*) on *Caulanthus hastatus* S. Wats.; and describes new species under Homalobus (5), Diholcos, Kentrophyta, Aragal-

lus (3), Hedysarum, Lathyrus, Capnoides (2), Lepidium (3), Thelypodium (2), Pleurophragma, Sophia (2), and Arabis.—J. M. C.

Ammonifying soil nitrogen.—LIPMAN has made another valuable contribution to soil bacteriology.[20] His experiments were exceedingly well planned, were fundamental, and in most cases gave consistent results. So much detail is included in the report that a satisfactory summary of the article is impossible.

He first tested the ability of various soils to ammonify nutrient solutions of peptone, and solutions containing peptone and inorganic salts. The addition of the salts favors the growth of certain species of bacteria and also ammonification under certain conditions. These species were unequally distributed in soils. Inoculation with soil infusion was decidedly inferior to inoculation with soil itself. But soil infusions in the same sterile soil exhibit relations similar to those of the corresponding direct soil inoculations. The inoculation of sterile soils in various ways shows that in ammonification the bacteriological soil factor is much more important than the chemical one. Manured soils showed a superior ammonifying power. Peptone salt solutions which are not provided with too large a quantity of mineral are most suitable for study of the general condition of the bacterial flora of the soil. The differences in the power of ammonification exhibited by several soils seem to bear no direct relation to their mechanical composition. The amount of the sterile soil which is inoculated affects the yield of ammonia, the amount of ammonia being larger, in nearly every case, in the larger samples of soil. This may be due to increased production of ammonia by ammonification of the soil nitrogen; or, more probably, to the larger amount of other mineral substances present which may be useful to the organism; or possibly to the absorption of deleterious products by the soils. Old samples of soil kept in a laboratory for some months had decidedly lower ammonifying power than the younger samples. Original differences in the ammonifying power of the different soils, however, were not entirely obliterated, even after keeping the samples in the laboratory for several months.

Lime added to the soil often stimulated the activity of decay bacteria, the stimulus increasing with the amount of lime up to two tons per acre. The author suggests that it may be possible to develop a bacteriological method of determining the lime requirements of soils in general. More consistent results were obtained by soluble nitrogenous material, such as peptone and gelatin, than by insoluble substances, like albumen, casein, and cotton-seed meal. As a rule, ammonia is produced very rapidly; the amounts given off in three days were nearly as large as in thirty-two days, and in some cases they were larger.

Working with Azotobacter, LIPMAN found that small quantities of soil did not furnish enough mineral salts, whereas in larger quantities a normal growth was obtained. He therefore suggests that it may be possible to measure the mineral

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[20] LIPMAN, G. B., Chemical and bacteriological factors in the ammonification of soil nitrogen. Report N. J. Agric. Exp. Sta. **1906**:119–187. 1907.